

REMARKS/ARGUMENTS

Applicants have carefully reviewed the Examiner's Office Action dated December 8, 2005, in which the Examiner rejected claims 1, 2, 8 and 9 under 35 U.S.C. 102(b) as being anticipated by Choi et al (USPN. 6,424,225); and objected to claims 3-7 and 10-14 as being dependent upon a rejected base claim.

Amendments to the Specification

The typographical error in the specification has been corrected.

Amendments to the Claims

Claims 1-2 and 8-14 have been canceled. Further, new claims 15-22 have been added to more particularly define the invention taking into consideration the outstanding Official Action. All of the amendments are fully supported by the original disclosure of this application and therefore do not constitute the introduction of any new matter into this case.

Reconsideration of the application is respectfully requested for the following reasons:

Rejection of claims 1, 2, 8 and 9 under 35 U.S.C. 102(b) Choi et al (USPN. 6,424,225)

Claims 1, 2, 8 and 9 have been canceled without prejudice or disclaimer.

Allowability of Claims 3-7 and 10-14

Claim 3 has been amended to include all of the limitations of claim 1, from which it originally depended. Therefore, claim 3 and claims 4-7 which depend therefrom are allowable by virtue of the indication of allowable subject matter in item 9 on page 4 of the Official Action.

Allowability of New Claims 15-22

The power amplifier defined in newly added claim 15 includes:

- an amplifying transistor; a bias circuit including a bias transistor,
- an emitter thereof being connected to a base of the amplifying transistor, the bias transistor providing an emitter current as a bias current to bias the amplifying transistor; and
- a bias current control circuit for maintaining an operation current substantially constant in the amplifying transistor by controlling a base voltage of the bias transistor to provide a constant emitter current to the base of the amplifying transistor regardless of fluctuation in a reference voltage and variation in temperature.

In addition, newly added claim 16 recites that:

- if the reference voltage fluctuates, the bias current control circuit maintains the base voltage of the bias transistor substantially constant, and, if the temperature varies, the bias current control circuit compensates fluctuations in the base voltage of the bias transistor.

Therefore, in the invention recited in the newly added claims, the operation current (i.e., collector current I_c of Q1) is controlled to be substantially constant regardless of

fluctuations in a reference voltage and variations in a temperature in accordance with the present invention.

In contrast, the Choi patent is directed to a power amplifier circuit for providing constant bias current over a wide temperature range as indicated by the Examiner. Choi only discloses a temperature stable bias circuit for an RF power amplifier, in which the bias circuitry uses current deletion and current supplement techniques in response to the temperature fluctuations. As a result, Choi clearly does not imply or even intend to control the base voltage of the bias transistor to provide a constant bias current to the amplifying transistor regardless of fluctuation in a reference voltage. To the contrary, the temperature stable bias circuit according to Choi is highly sensitive to variation in the reference voltage.

For example, in the circuit of Choi, as the temperature decreases, the current flowing through first supplement transistor 522 also drops, thus causing the voltage present at the collector terminal 520 of first supplement transistor 522 to increase (see, column 7, lines 59-67). However, if V_{REF} increases at the same time, the current flowing through first supplement transistor 522 increases. **These results are inconsistent, and therefore instability occurs whenever the temperature decreases and V_{REF} increases at the same time.** The power amplifier circuit of Choi has drawbacks due to the fluctuations in the reference voltage that substantially makes the operation current I_{RF} of the transistor Q_{RF} fluctuate.

Consequently, applicants most respectfully submit that the power amplifier claimed in claim 15 is totally different from and not analogous to that of Choi; and therefore that claims 15-22 are in complete condition for allowance. Accordingly, it is

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respectfully requested that the Examiner's rejections be withdrawn; and that claims 3-7 and 15-22 be allowed in their present form.

CONCLUSION

Applicants believe that this is a full and complete response to the Office Action. For the reasons discussed above, applicants now respectfully submit that all of the pending claims are in complete condition for allowance. Accordingly, it is respectfully requested that the Examiner's rejections be withdrawn; and that claims 3-7 and 10-22 be allowed in their present form. If the Examiner feels that any issues that remain require discussion, he is kindly invited to contact applicant's undersigned attorney to resolve the issues.

In view of the above comments and further amendments to the claims, favorable reconsideration and allowance of all of the claims now present in the application are most respectfully requested.

Respectfully submitted,
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